UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/581,156	WANG ET AL.
	Examiner	Art Unit	
	NICHOLAS SLOMS	2476	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _07 April 2011_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-4 and 6-20_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-4 and 6-20_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _06 July 2006_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This application has been re-examined. Claims 1-4 and 6-20 are still pending.

Response to Arguments

2.   Applicant submitted a Request for Continued Examination (RCE) on 4/7/2011. Examiner

has noted the amendments to claims 12-16, and consequently, the 35 USC §101 rejection is

withdrawn. Applicant contests the prior art rejections for two reasons: Zhang does not teach (1) "a

first signal including an original data stream and a predetermined pattern" and "a second signal

including the original data stream and the predetermined pattern," and (2) "the predetermined

pattern is substantially sinusoidal and comprises a <u>single</u> predetermined period." These arguments

are not persuasive. Examiner maintains that Zhang anticipates both of these limitations.

        RE (1): Attention is drawn to figure 4 and explanation beginning column 8, line 46. "A first

signal", as claimed, may be interpreted as the bottom trace 410 which represents the received

reference-path signal. This signal has <u>a repeating pattern</u> (See column 8, line 48. Also note the

pattern in figure 4.). The trace includes an original data stream using broadest reasonable

interpretation of the term "data." [From Wikipedia.org: The term "data" refers to qualitative or

quantitative attributes of a variable or set of variables. Data are typically the results of measurements

and can be the basis of graphs, images, or observations of a set of variables. <u>Data are often viewed

as the lowest level of abstraction from which information and then knowledge are derived.</u>] The

pattern/data stream of Zhang is used to derive information about the network (See

abstract.). "A second signal", as claimed, may be interpreted as the top trace 420 which represents

the received test-path signal. The second signal may include the original (or altered, depending on

network conditions) data stream and predetermined pattern. Note column 8, lines 62-64, which

read: "Ideally, the received test-path signal would be identical to the received reference-path signal except for delay."

RE (2) Furthermore, the pattern is "substantially sinusoidal" as explained in the final office action sent 1/7/11, page 3. The designation of a particular frequency is substantially sinusoidal inasmuch as a pure tone at a particular frequency is represented as a sine wave. The imparting of external noise factors causes a pure tone to lose some of its recognizable characteristics, as is known in the art; however, the signal remains substantially sinusoidal.

Applicant has amended to specify that the predetermined period is a "single" predetermined period. Examiner gathers that because the pattern in Zhang (figure 4) consists of multiple frequencies, multiple periods exist for each frequency segment. However, the overall pattern itself, which consists of segment 424a - 424j, has a single predetermined period. This period is a unit of time (Note the horizontal axis of figure 4.), and there is only one period for the overall pattern.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claims 1-4, 6, 7, 12-15, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Zhang et al. (US 6,775,240), hereinafter "Zhang".

Regarding claim 1, Zhang discloses a method comprising: receiving in a signal processing subsystem a first signal including an original data stream and a predetermined pattern; receiving in the signal processing subsystem a second signal including the original data stream and the predetermined pattern, the predetermined pattern is substantially sinusoidal and comprises a single predetermined period (See figure 1. Reference and test path signals are received. See ¶ at column 3, line 13; also at column 5, line 1. Also see figure 4 and column 8, line 48. Also see explanation in section 2 above.); and

determining by the signal processing subsystem a transmission latency between the received first signal and the received second signal based on the predetermined pattern (See e.g. column 7, lines 50-65.).

Regarding claim 2, Zhang further discloses wherein the first signal is received from a first source and the second signal is received from a second source (See figure 1. The test path includes source elements different from the reference path.).

Regarding claim 3, Zhang further discloses inserting the predetermined pattern in the first and second signals prior to receiving the first and second signals in the signal processing subsystem (See e.g. ¶ at column 6, line 30.).

Regarding claim 4, Zhang further discloses recording the received first and second signals in a combination waveform; and determining the transmission latency between the received first

and second signals from the combination waveform (See e.g. ¶ at column 6, line 50; also at column 7, line 27.).

Regarding claim 6, Zhang further discloses wherein the predetermined period is greater than a transmission latency period (See figure 4. The delay is shown as shorter than the predetermined period.).

Regarding claim 7, Zhang further discloses obtaining from the first signal a first pattern corresponding to the predetermined pattern; obtaining from the second signal a second pattern corresponding to the predetermined pattern (See figures 1 and 4. A predetermined pattern is sent along the reference and test path. The obtained patterns may be different.);

determining a first time-position corresponding to the obtained first pattern; determining a second time-position corresponding to the obtained second pattern; and determining a latency value between the first time-position and second time-position, the transmission latency comprising the determined latency value (See e.g. ¶s at column 7, line 66, and column 8, line 46. Also note figure 3.).

Regarding claim 12, Zhang discloses a system being implemented within a computing device comprising: a pattern insertion subsystem to insert a predetermined pattern into a first signal and a second signal, wherein the predetermined pattern is substantially sinusoidal and comprises a single predetermined period; and a signal processing subsystem to (i) receive the inserted first signal and the inserted second signal wherein both include an original data stream and predetermined pattern (See figure 1. Reference and test path signals are received. See ¶ at column 3, line 13; also

at column 5, line 1. Also see figure 4 and column 8, line 48. Also see explanation in section 2

above.), and (ii) determine a transmission latency between the received signals based on the

predetermined pattern (See e.g. column 7, lines 50-65.).

Regarding claim 13, Zhang further discloses a filter subsystem to obtain a first pattern

corresponding to the predetermined pattern from the inserted first signal and a second pattern

corresponding to the predetermined pattern from the inserted second signal (See figures 1 and 4.

A predetermined pattern is sent along the reference and test path. The obtained patterns may be

different.);

a timer subsystem to determine a first time-position corresponding to the obtained first

pattern, and a second time-position corresponding to the obtained second pattern; and a latency

determination logic to determine a latency between the first time-position and second time-position

wherein the transmission latency comprises the determined latency (See e.g. ¶s at column 7, line 66,

and column 8, line 46. Also note figure 3.).

Regarding claim 14, Zhang further discloses a recordation subsystem to record the

received inserted first and second signals in a combination waveform (See e.g. ¶ at column 6, line

50; also at column 7, line 27. Also see ¶ at column 5, line 34.).

Regarding claim 15, Zhang further discloses a first input to receive the inserted first signal; and a second input to receive the inserted second signal (See figure 1, items 124 and 126. Also note.).

Regarding claim 18, Zhang discloses a non-transitory storage medium that provides software that, if executed by a signal processing subsystem, will cause the signal processing subsystem to perform the following operations: receive a first signal comprising a predetermined pattern; receive a second signal comprising the predetermined pattern, wherein both signals comprise an original data stream and a predetermined pattern and are substantially sinusoidal with a single predetermined period (See figure 1. Reference and test path signals are received. See ¶ at column 3, line 13; also at column 5, line 1. Also see figure 4 and column 8, line 48. Also see explanation in section 2 above.); and

determine a transmission latency between the received first signal and the received second signal based on the predetermined pattern (See e.g. column 7, lines 50-65.).

Regarding claim 19, Zhang further discloses inserting the predetermined pattern into the first and second signals prior to the receipt of the first and second signals in the signal processing subsystem (See e.g. ¶ at column 6, line 30.).

Regarding claim 20, Zhang further discloses the following operations:

obtain from the first signal a first pattern corresponding to the predetermined pattern; obtain from the second signal a second pattern corresponding to the predetermined pattern (See figures 1

and 4. A predetermined pattern is sent along the reference and test path. The obtained patterns

may be different.);

determine a first time-position corresponding to the obtained first pattern; determine a

second time-position corresponding to the obtained second pattern and determine a latency between

the first time-position and second time-position where in the transmission latency comprises the

determined latency (See e.g. ¶s at column 7, line 66, and column 8, line 46. Also note figure 3.).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section
> 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the
> subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary
> skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

6.   This application currently names joint inventors. In considering patentability of the claims

under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was

commonly owned at the time any inventions covered therein were made absent any evidence to the

contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and

invention dates of each claim that was not commonly owned at the time a later invention was made

in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35

U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7.   Claims 8-11, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Zhang et al. (US 6,775,240), hereinafter "Zhang", in view of Liu et al. (US 2006/0072628),

hereinafter "Liu".

        Regarding claim 8, Zhang substantially discloses the method as set forth in 1 above.

Zhang does not explicitly state both a plurality of first and second signals each containing the

predetermined pattern. However, Liu discusses burst delay or the delaying of multiple packets

(¶20). It would have been obvious to one having ordinary skill in the art at the time of the

invention to apply the system taught by Zhang to a plurality of packets in order to account for

burst delay.

        Regarding claim 9, the combination of Zhang and Liu further teaches obtaining a plurality

of first patterns corresponding to the predetermined pattern in each of the plurality of first signals;

obtaining a plurality of second patterns corresponding to the predetermined pattern in each of the

plurality of second signals; determining a plurality of first time-positions, wherein each first time-

position in the plurality of first time-positions corresponding to an obtained first pattern (See

Zhang, figures 1 and 4. A predetermined pattern is sent along the reference and test path. The

obtained patterns may be different.);

        determining a plurality of second time-positions, wherein each second time-position in the

plurality of second time-positions corresponding to an obtained second pattern; and determining a

plurality of latency values between the first time-positions and the second time-positions, wherein

each latency value in the plurality of latency values corresponds to a latency between a first time-

position and a corresponding second time-position; determining an average latency value from the

plurality of latency values, the transmission latency comprising the determined average latency value (See Zhang, e.g. ¶s at column 7, line 66, and column 8, line 46. Also note figure 3.).

Regarding claim 10, the combination of Zhang and Liu further teaches inserting the predetermined pattern in a plurality of first and second signals prior to receiving the plurality of first and second signals in the signal processing subsystem (See Zhang, e.g. ¶ at column 6, line 30.).

Regarding claim 11, the combination of Zhang and Liu further teaches recording the received plurality of first and second signals in a combination waveform; and determining the transmission latency between the received first and second signals from the combination waveform (See Zhang, e.g. ¶ at column 6, line 50; also at column 7, line 27.).

Regarding claim 16, Zhang substantially discloses the method as set forth in 1 above. Zhang does not explicitly state both a plurality of first and second signals each containing the predetermined pattern. However, Liu discusses burst delay or the delaying of multiple packets (¶20). It would have been obvious to one having ordinary skill in the art at the time of the invention to apply the system taught by Zhang to a plurality of packets in order to account for burst delay.

The combination of Zhang and Liu teaches wherein the signal processing subsystem is to receive a plurality of first signals each comprising a predetermined pattern, and a plurality of second signals each comprising the predetermined pattern, the filter subsystem is to obtain a plurality of first patterns corresponding to the predetermined pattern in each of the plurality of first signals, and to obtain a plurality of second patterns corresponding to the predetermined pattern in each of

the plurality of second signals (See figures 1 and 4. A predetermined pattern is sent along the

reference and test path. The obtained patterns may be different.),

the timer subsystem is to determine a plurality of first time-positions, wherein each first

time-position in the plurality of first time-positions corresponding to an obtained first pattern, and

to determine a plurality of second time-positions, wherein each second time-position in the

plurality of second time-positions corresponding to an obtained second pattern, and the latency

determination logic is to determine a plurality of latencies between the first time-positions and the

second time-positions, wherein each latency in the plurality of latencies corresponds to a latency

between a first time-position and a corresponding second time-position, and to determine an

average latency value from the plurality of latencies, the transmission latency comprising the

determined average latency (See e.g. ¶s at column 7, line 66, and column 8, line 46. Also note

figure 3.).

Regarding claim 17, the combination of Zhang and Liu further teaches wherein the first

signal is received from an audio source and the second signal is received from an audio sink (See

Zhang, e.g. abstract, "audio paths".).

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the examiner

should be directed to NICHOLAS SLOMS whose telephone number is (571)270-7520. The

examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NICHOLAS SLOMS/
Examiner, Art Unit 2476

/Salman Ahmed/
Primary Examiner, Art Unit 2476